

Connecting via Winsock to STN

Welcome to STN International! Enter x:X

LOGINID:SSPTAIAG1615

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * Welcome to STN International * * * * * * * * *

NEWS 1 Web Page for STN Seminar Schedule - N. America
NEWS 2 NOV 21 CAS patent coverage to include exemplified prophetic substances identified in English-, French-, German-, and Japanese-language basic patents from 2004-present
NEWS 3 NOV 26 MARPAT enhanced with FSORT command
NEWS 4 NOV 26 CHEMSAFE now available on STN Easy
NEWS 5 NOV 26 Two new SET commands increase convenience of STN searching
NEWS 6 DEC 01 ChemPort single article sales feature unavailable
NEWS 7 DEC 12 GBFULL now offers single source for full-text coverage of complete UK patent families
NEWS 8 DEC 17 Fifty-one pharmaceutical ingredients added to PS
NEWS 9 JAN 06 The retention policy for unread STNmail messages will change in 2009 for STN-Columbus and STN-Tokyo
NEWS 10 JAN 07 WPIDS, WPINDEX, and WPIX enhanced Japanese Patent Classification Data
NEWS 11 FEB 02 Simultaneous left and right truncation (SLART) added for CERAB, COMPUAB, ELCOM, and SOLIDSTATE
NEWS 12 FEB 02 GENBANK enhanced with SET PLURALS and SET SPELLING
NEWS 13 FEB 06 Patent sequence location (PSL) data added to USGENE
NEWS 14 FEB 10 COMPENDEX reloaded and enhanced
NEWS 15 FEB 11 WTEXTILES reloaded and enhanced
NEWS 16 FEB 19 New patent-examiner citations in 300,000 CA/CAplus patent records provide insights into related prior art
NEWS 17 FEB 19 Increase the precision of your patent queries -- use terms from the IPC Thesaurus, Version 2009.01
NEWS 18 FEB 23 Several formats for image display and print options discontinued in USPATFULL and USPAT2
NEWS 19 FEB 23 MEDLINE now offers more precise author group fields and 2009 MeSH terms
NEWS 20 FEB 23 TOXCENTER updates mirror those of MEDLINE - more precise author group fields and 2009 MeSH terms
NEWS 21 FEB 23 Three million new patent records blast AEROSPACE into STN patent clusters

NEWS EXPRESS JUNE 27 08 CURRENT WINDOWS VERSION IS V8.3,
AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items
NEWS IPC8 For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 09:13:10 ON 25 FEB 2009

FILE 'REGISTRY' ENTERED AT 09:13:43 ON 25 FEB 2009
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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STRUCTURE FILE UPDATES: 23 FEB 2009 HIGHEST RN 1110839-66-1
DICTIONARY FILE UPDATES: 23 FEB 2009 HIGHEST RN 1110839-66-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

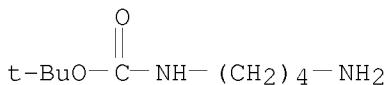
<http://www.cas.org/support/stngen/stndoc/properties.html>

=> s boc
L1 1186 BOC

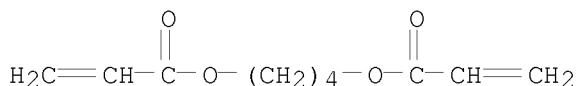
=> d scan L1

L1 1186 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 2-Propenoic acid, 1,1'-(1,4-butanediyl) ester, polymer with 1-butanamine,
 1,1-dimethylethyl N-(4-aminobutyl)carbamate and 1-octadecanamine
MF (C18 H39 N . C10 H14 O4 . C9 H20 N2 O2 . C4 H11 N)x
CI PMS

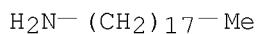
CM 1



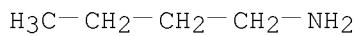
CM 2



CM 3



CM 4



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L1 1186 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
 IN BOC 1
 MF Unspecified
 CI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

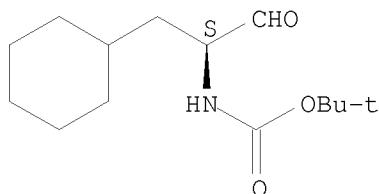
=> s tert-butyloxycarbonyl
 140489 TERT
 1153 BUTYLOXYCARBONYL
 L2 1017 TERT-BUTYLOXYCARBONYL
 (TERT (W) BUTYLOXYCARBONYL)

=> s L1 and L2
 L3 101 L1 AND L2

=> d scan L3

L3 101 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
 IN Carbamic acid, [(1S)-2-cyclohexyl-1-formylethyl]-, 1,1-dimethylethyl ester
 (9CI)
 MF C14 H25 N O3

Absolute stereochemistry. Rotation (-).

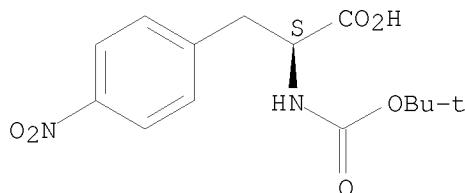


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2

L3 101 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN L-Phenylalanine, N-[(1,1-dimethylethoxy)carbonyl]-4-nitro-
MF C14 H18 N2 O6
CI COM

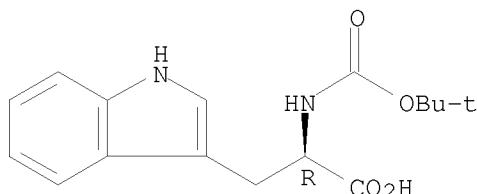
Absolute stereochemistry. Rotation (+).



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 101 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN D-Tryptophan, N-[(1,1-dimethylethoxy)carbonyl]-
MF C16 H20 N2 O4
CI COM

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> logoff hold	SINCE FILE	TOTAL
COST IN U.S. DOLLARS	ENTRY	SESSION
FULL ESTIMATED COST	20.85	21.07

SESSION WILL BE HELD FOR 120 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 09:19:33 ON 25 FEB 2009

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:SSPTAIAG1615

PASSWORD:

* * * * * RECONNECTED TO STN INTERNATIONAL * * * * *

SESSION RESUMED IN FILE 'REGISTRY' AT 09:33:01 ON 25 FEB 2009

FILE 'REGISTRY' ENTERED AT 09:33:01 ON 25 FEB 2009

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	20.85	21.07

=> file registry

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	20.85	21.07

FILE 'REGISTRY' ENTERED AT 09:33:12 ON 25 FEB 2009
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STRUCTURE FILE UPDATES: 23 FEB 2009 HIGHEST RN 1110839-66-1
DICTIONARY FILE UPDATES: 23 FEB 2009 HIGHEST RN 1110839-66-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

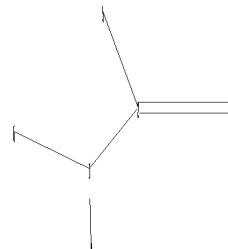
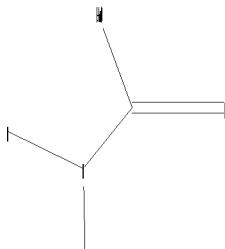
TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>
Uploading C:\Documents and Settings\igreene\My Documents\case_docs\10553439_11249328\Search\STN\boc.str



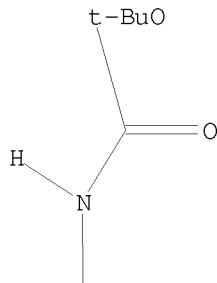
chain nodes :
1 2 3 4 5 6
chain bonds :
1-2 1-3 1-6 2-4 2-5
exact/norm bonds :
1-2 1-3 2-4

exact bonds :
1-6 2-5

Match level :
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS

L4 STRUCTURE UPLOADED

=> d L4
L4 HAS NO ANSWERS
L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s L4 EXACT SAM
SAMPLE SEARCH INITIATED 09:34:15 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 2 TO ITERATE

100.0% PROCESSED 2 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2 TO 124
PROJECTED ANSWERS: 0 TO 0

L5 0 SEA EXA SAM L4

=> s L4 FAM SAM
SAMPLE SEARCH INITIATED 09:34:34 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 707 TO ITERATE

100.0% PROCESSED 707 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 12545 TO 15735
PROJECTED ANSWERS: 0 TO 0

L6 0 SEA FAM SAM L4

=> s L4 SSS SAM
SAMPLE SEARCH INITIATED 09:34:42 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 18887 TO ITERATE

10.6% PROCESSED 2000 ITERATIONS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

50 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 369510 TO 385970
PROJECTED ANSWERS: 237773 TO 251021

L7 50 SEA SSS SAM L4

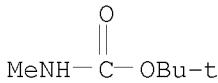
=> s L4 EXACT FULL
FULL SEARCH INITIATED 09:35:04 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 39 TO ITERATE

100.0% PROCESSED 39 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

L8 1 SEA EXA FUL L4

=> d L8

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
RN 16066-84-5 REGISTRY
ED Entered STN: 16 Nov 1984
CN Carbamic acid, N-methyl-, 1,1-dimethylethyl ester (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Carbamic acid, methyl-, 1,1-dimethylethyl ester (9CI)
CN Carbamic acid, methyl-, tert-butyl ester (8CI)
OTHER NAMES:
CN (tert-Butoxycarbonyl)methylamine
CN Methylcarbamic Acid tert-Butyl Ester
CN Methylcarbamic acid tert-butyl ester
CN N-(tert-Butoxycarbonyl)methylamine
CN tert-Butyl methylcarbamate
CN tert-Butyl N-methylcarbamate
MF C6 H13 N O2
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX,
SPECINFO, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

40 REFERENCES IN FILE CA (1907 TO DATE)
40 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d hist

(FILE 'HOME' ENTERED AT 09:13:10 ON 25 FEB 2009)

FILE 'REGISTRY' ENTERED AT 09:13:43 ON 25 FEB 2009
L1 1186 S BOC

L2 1017 S TERT-BUTYLOXYCARBONYL
L3 101 S L1 AND L2

FILE 'REGISTRY' ENTERED AT 09:33:12 ON 25 FEB 2009
L4 STRUCTURE uploaded
L5 0 S L4 EXACT SAM
L6 0 S L4 FAM SAM
L7 50 S L4 SSS SAM
L8 1 S L4 EXACT FULL

=> s "carbon nanotube"
126937 "CARBON"
310 "CARBONS"
126937 "CARBON"
("CARBON" OR "CARBONS")
4 "NANOTUBE"
2 "NANOTUBES"
4 "NANOTUBE"
("NANOTUBE" OR "NANOTUBES")
L9 2 "CARBON NANOTUBE"
("CARBON" (W) "NANOTUBE")

=> d L9

L9 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2009 ACS on STN
RN 308068-56-6 REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
result in incomplete search results. For additional information, enter HELP
RN* at an online arrow prompt (=>).
ED Entered STN: 12 Dec 2000
CN Fullerenes, tubular (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Nanotubes, carbon
OTHER NAMES:
CN Carbon nanotube
CN Carbon nanotubes
CN Sunnano SWNT
CN SWCNT
CN Tubular fullerenes
CN Tubulene
CN Tubulenes
CN VGCF-G
MF Unspecified
CI MAN, CTS
SR CA
LC STN Files: CHEMCATS, CSCHEM

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

=> d L9 2

L9 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2009 ACS on STN
RN 308063-63-0 REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
result in incomplete search results. For additional information, enter HELP
RN* at an online arrow prompt (=>).
ED Entered STN: 12 Dec 2000
CN Carbon fibers, nanotube (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Nanotubes, carbon fibers
OTHER NAMES:

CN Carbere TEM
CN Carbon nanotube fibers
CN CNT
CN Fibril RMB 4620-00
CN Graphite Fibrils
CN Graphite Fibrils BN
CN HTF 150FF-HHT
CN Hyperion BN
CN Nanotube carbon fibers
CN PR 24
CN PR 24HHT
CN Pyrograf III
CN Pyrograf III-PR 19
CN Pyrograf III-PR 19HHT
CN Pyrograf III-PR 19PS
CN Pyrograf III-PR 24
CN Pyrograf III-PR 24HHT
CN Pyrograf III-PR 24LHT
CN Pyrograf III-PR 24PS-NS
CN Pyrograf III-PR 24PS-OX
MF Unspecified
CI MAN, CTS
SR CA

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

=> s PEO OR PEG
 53 PEO
 418 PEG
 2 PEGS
 420 PEG
 (PEG OR PEGS)
L10 468 PEO OR PEG

=> s di-tert-butoxycarbonyl
 22383582 DI
 75676 DIS
 22383582 DI
 (DI OR DIS)
 140489 TERT
 19438 BUTOXCARBONYL
 1 BUTOXCARBONYLS
 19438 BUTOXCARBONYL
 (BUTOXCARBONYL OR BUTOXCARBONYLS)
L11 65 DI-TERT-BUTOXCARBONYL
 (DI (W) TERT (W) BUTOXCARBONYL)

	SINCE FILE	TOTAL
	ENTRY	SESSION
COST IN U.S. DOLLARS		
FULL ESTIMATED COST	110.52	131.59

FILE 'CAPLUS' ENTERED AT 09:38:40 ON 25 FEB 2009
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FILE COVERS 1907 - 25 Feb 2009 VOL 150 ISS 9
FILE LAST UPDATED: 24 Feb 2009 (20090224/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d hist

(FILE 'HOME' ENTERED AT 09:13:10 ON 25 FEB 2009)

FILE 'REGISTRY' ENTERED AT 09:13:43 ON 25 FEB 2009

L1 1186 S BOC
L2 1017 S TERT-BUTYLOXYCARBONYL
L3 101 S L1 AND L2

FILE 'REGISTRY' ENTERED AT 09:33:12 ON 25 FEB 2009

L4 STRUCTURE UPLOADED
L5 0 S L4 EXACT SAM
L6 0 S L4 FAM SAM
L7 50 S L4 SSS SAM
L8 1 S L4 EXACT FULL
L9 2 S "CARBON NANOTUBE"
L10 468 S PEO OR PEG
L11 65 S DI-TERT-BUTOXYCARBONYL

FILE 'CAPLUS' ENTERED AT 09:38:40 ON 25 FEB 2009

=> s L9 AND L10 AND (L2 OR L11 OR L7)
0 L9
512563 L10
33060 L2
1618 L11
45 L7
L12 0 L9 AND L10 AND (L2 OR L11 OR L7)

=> s L9 AND L10
0 L9
512563 L10
L13 0 L9 AND L10

=> s L9 AND (L2 OR L11 OR L7)
0 L9
33060 L2
1618 L11
45 L7
L14 0 L9 AND (L2 OR L11 OR L7)

=> s L9

L15 0 L9

=> s "(carbon nanotube OR "Nanotubes" (L) "carbon")"
'""' NOT VALID HERE

=> s (carbon nanotube OR "Nanotubes" (L) "carbon")
1439037 CARBON
30105 CARBONS
1449617 CARBON
 (CARBON OR CARBONS)
49175 NANOTUBE
59758 NANOTUBES
61724 NANOTUBE
 (NANOTUBE OR NANOTUBES)
46572 CARBON NANOTUBE
 (CARBON(W) NANOTUBE)
59758 "NANOTUBES"
1439037 "CARBON"
30105 "CARBONS"
1449617 "CARBON"
 ("CARBON" OR "CARBONS")
50875 "NANOTUBES" (L) "CARBON"
L16 52279 (CARBON NANOTUBE OR "NANOTUBES" (L) "CARBON")

=> s Boc
18430 BOC
84 BOCS
L17 18512 BOC
 (BOC OR BOCS)

=> s PEO OR (PEG OR "Polyethylene glycol")
11669 PEO
164 PEOS
11703 PEO
 (PEO OR PEOS)
49433 PEG
1533 PEGS
50061 PEG
 (PEG OR PEGS)
399924 "POLYETHYLENE"
15238 "POLYETHYLENES"
404624 "POLYETHYLENE"
 ("POLYETHYLENE" OR "POLYETHYLENES")
410331 "GLYCOL"
49429 "GLYCOLS"
427374 "GLYCOL"
 ("GLYCOL" OR "GLYCOLS")
122119 "POLYETHYLENE GLYCOL"
 ("POLYETHYLENE"(W) "GLYCOL")
L18 160490 PEO OR (PEG OR "POLYETHYLENE GLYCOL")

=> d hist

(FILE 'HOME' ENTERED AT 09:13:10 ON 25 FEB 2009)

FILE 'REGISTRY' ENTERED AT 09:13:43 ON 25 FEB 2009

L1 1186 S BOC
L2 1017 S TERT-BUTYLOXYCARBONYL
L3 101 S L1 AND L2

FILE 'REGISTRY' ENTERED AT 09:33:12 ON 25 FEB 2009

L4 STRUCTURE uploaded

L5 0 S L4 EXACT SAM
L6 0 S L4 FAM SAM
L7 50 S L4 SSS SAM
L8 1 S L4 EXACT FULL
L9 2 S "CARBON NANOTUBE"
L10 468 S PEO OR PEG
L11 65 S DI-TERT-BUTOXYCARBONYL

FILE 'CAPLUS' ENTERED AT 09:38:40 ON 25 FEB 2009
L12 0 S L9 AND L10 AND (L2 OR L11 OR L7)
L13 0 S L9 AND L10
L14 0 S L9 AND (L2 OR L11 OR L7)
L15 0 S L9
E CARBON NANOTUBE+ALL/CT
L16 52279 S (CARBON NANOTUBE OR "NANOTUBES" (L) "CARBON")
L17 18512 S BOC
E PEG+ALL/CT
L18 160490 S PEO OR (PEG OR "POLYETHYLENE GLYCOL")

=> s L16 AND L17 AND L18
L19 1 L16 AND L17 AND L18

=> d L19 ibib abs

L19 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:905084 CAPLUS
DOCUMENT NUMBER: 149:252119
TITLE: Targeted Single-Wall Carbon Nanotube
-Mediated Pt(IV) Prodrug Delivery Using Folate as a
Homing Device
AUTHOR(S): Dhar, Shanta; Liu, Zhuang; Thomale, Jurgen; Dai,
Hongjie; Lippard, Stephen J.
CORPORATE SOURCE: Department of Chemistry, Massachusetts Institute of
Technology, Cambridge, MA, 02139, USA
SOURCE: Journal of the American Chemical Society (2008),
130(34), 11467-11476
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 149:252119
AB Most low-mol.-weight platinum anticancer drugs have short blood circulation times that are reflected in their reduced tumor uptake and intracellular DNA binding. A platinum(IV) complex of the formula c,c,t-[Pt(NH₃)₂C₁₂(O₂CCH₂CH₂CO₂H)(O₂CCH₂CH₂CONH-PEG-FA)] (I), containing a folate derivative (FA) at an axial position, was prepared and characterized. Folic acid offers a means of targeting human cells that highly overexpress the folate receptor (FR). Compound I was attached to the surface of an amine-functionalized single-walled carbon nanotube (SWNT-PL-PEG-NH₂) through multiple amide linkages to use the SWNTs as a "longboat delivery system" for the platinum warhead, carrying it to the tumor cell and releasing cisplatin upon intracellular reduction of Pt(IV) to Pt(II). The ability of SWNT tethered I to destroy selectively FR(+) vs. FR(-) cells demonstrated its ability to target tumor cells that overexpress the FR on their surface. That the SWNTs deliver the folate-bearing Pt(IV) cargos into FR(+) cancer cells by endocytosis was demonstrated by the localization of fluorophore-labeled SWNTs using fluorescence microscopy. Once inside the cell, cisplatin, formed upon reductive release from the longboat oars, enters the nucleus and reacts with its target nuclear DNA, as determined by platinum atomic absorption spectroscopy of cell exts. Formation of the major cisplatin 1,2-intrastrand d(GpG) crosslinks on the nuclear DNA was demonstrated by

use of a monoclonal antibody specific for this adduct. The SWNT-tethered compound I is the first construct in which both the targeting and delivery moieties have been incorporated into the same mol.; it is also the first demonstration that intracellular reduction of a Pt(IV) prodrug leads to the cis-{Pt(NH₃)₂} 1,2-intrastrand d(GpG) crosslink in nuclear DNA.

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> s L16 AND L17
L20 12 L16 AND L17

=> s L16 AND L18
L21 450 L16 AND L18

=> d L20 1-12 ibib abs

L20 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:1317613 CAPLUS

TITLE: Aryl-derivatized, water-soluble functionalized carbon nanotubes for biomedical applications

AUTHOR(S): Karousis, N.; Ali-Boucetta, H.; Kostarelos, K.; Tagmatarchis, N.

CORPORATE SOURCE: Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, 11635, Greece

SOURCE: Materials Science & Engineering, B: Advanced Functional Solid-State Materials (2008), 152(1-3), 8-11

PUBLISHER: CODEN: MSBTEK; ISSN: 0921-5107
Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The functionalization of very-thin multi-walled carbon nanotubes (VT-MWNTs) with an aniline derivative, via the protocol of in situ generated aryl diazonium salts results, upon acidic deprotection of the terminal BOC group, on the formation of the water-soluble pos. charged ammonium functionalized VT-MWNTs-NH₃ + material. The new materials have been structurally and morphol. characterized by infra-red (ATR-IR) spectroscopy and transmission electron microscopy (TEM). The quant. calcn. of the grafted aryl units onto the skeleton of VT-MWNTs has been estimated by thermogravimetric anal. (TGA), while the quant. Kaiser test showed the amine group loaded onto VT-MWNTs-NH₃ + material. The aqueous solubility

of this material has allowed the performance of some initial toxicol. in vitro investigations.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:905084 CAPLUS

DOCUMENT NUMBER: 149:252119

TITLE: Targeted Single-Wall Carbon Nanotube -Mediated Pt(IV) Prodrug Delivery Using Folate as a Homing Device

AUTHOR(S): Dhar, Shanta; Liu, Zhuang; Thomale, Jurgen; Dai, Hongjie; Lippard, Stephen J.

CORPORATE SOURCE: Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA

SOURCE: Journal of the American Chemical Society (2008), 130(34), 11467-11476

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 149:252119

AB Most low-mol.-weight platinum anticancer drugs have short blood circulation times that are reflected in their reduced tumor uptake and intracellular DNA binding. A platinum(IV) complex of the formula c,c,t-[Pt(NH₃)₂C₁₂(O₂CCH₂CH₂CO₂H)(O₂CCH₂CH₂CONH-PEG-FA)] (I), containing a folate derivative (FA) at an axial position, was prepared and characterized. Folic acid offers a means of targeting human cells that highly overexpress the folate receptor (FR). Compound I was attached to the surface of an amine-functionalized single-walled carbon nanotube (SWNT-PL-PEG-NH₂) through multiple amide linkages to use the SWNTs as a "longboat delivery system" for the platinum warhead, carrying it to the tumor cell and releasing cisplatin upon intracellular reduction of Pt(IV) to Pt(II). The ability of SWNT tethered I to destroy selectively FR(+) vs. FR(-) cells demonstrated its ability to target tumor cells that overexpress the FR on their surface. That the SWNTs deliver the folate-bearing Pt(IV) cargos into FR(+) cancer cells by endocytosis was demonstrated by the localization of fluorophore-labeled SWNTs using fluorescence microscopy. Once inside the cell, cisplatin, formed upon reductive release from the longboat oars, enters the nucleus and reacts with its target nuclear DNA, as determined by platinum atomic absorption spectroscopy of cell exts. Formation of the major cisplatin 1,2-intrastrand d(GpG) crosslinks on the nuclear DNA was demonstrated by use of a monoclonal antibody specific for this adduct. The SWNT-tethered compound I is the first construct in which both the targeting and delivery moieties have been incorporated into the same mol.; it is also the first demonstration that intracellular reduction of a Pt(IV) prodrug leads to the cis-{Pt(NH₃)₂} 1,2-intrastrand d(GpG) crosslink in nuclear DNA.

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:293093 CAPLUS
DOCUMENT NUMBER: 148:449902
TITLE: Controlled patterning of peptide nanotubes and nanospheres using inkjet printing technology
AUTHOR(S): Adler-Abramovich, Lihi; Gazit, Ehud
CORPORATE SOURCE: Department of Molecular Microbiology and Biotechnology, George S. Wise Faculty of Life Sciences, Tel Aviv University, Tel Aviv-Jaffa, 69978, Israel
SOURCE: Journal of Peptide Science (2008), 14(2), 217-223
CODEN: JPSIEI; ISSN: 1075-2617
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Peptide nanostructures are expected to serve as a major tool in future nanotechnol. applications owing to their excellent self-assembly properties, biol. and chemical flexibility and structural simplicity. Yet one of the limiting factors for the integration of peptide assemblies into functional electro-organic hybrid devices is the controlled patterning of their assemblies. Here, the authors report the use of inkjet technol. for the application of peptide nanostructures on nonbiol. surfaces. The aromatic dipeptides nanotubes (ADNT) which readily self-assemble in solution were used as an 'ink' and patterned on transparency foil and ITO plastic surfaces using a com. inkjet printer. While inkjet technol. was used in the past for the patterning of carbon nanotubes, it was not used for the deposition of biomol. nanostructures. Furthermore, during the development of the application, the authors were able to produce two types of nanostructures, i.e., nanotubes and

nanospheres by the self-assembly of the same aromatic dipeptide, Boc-
-Phe-Phe-OH, under different conditions. Both spherical and tubular
structures could be efficiently patterned on surfaces into predesigned
patterns. The applications of such technol. are discussed.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:1473645 CAPLUS

DOCUMENT NUMBER: 148:239468

TITLE: Amino acid functionalization of double-wall carbon nanotubes studied by Raman spectroscopy

AUTHOR(S): Marcolongo, Gabriele; Ruaro, Giorgio; Gobbo, Marina; Meneghetti, Moreno

CORPORATE SOURCE: Department of Chemical Sciences, University of Padova, Padua, 35131, Italy

SOURCE: Chemical Communications (Cambridge, United Kingdom) (2007), (46), 4925-4927

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Double-walled carbon nanotubes (DWNT) are oxidized with potassium permanganate to yield DWNT selectively functionalized on their outer walls; coupling of the oxidized DWNT with ϵ -Boc-L-lysine Me ester hydrochloride yields lysine-substituted DWNT. The Raman spectra of pristine and oxidized DWNT and of oxidized DWNT coupled to lysine are obtained and compared with the Raman spectra of pristine and oxidized single-walled carbon nanotubes. The fraction of bound lysine per carbon atom in the oxidized DWNT coupled to lysine is determined both by acid hydrolysis of the nanotubes and by the use of the Kaiser test on the acid-deprotected lysine-functionalized DWNT..

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:1054087 CAPLUS

DOCUMENT NUMBER: 146:3709

TITLE: Small interfering RNA and single walled carbon nanotubes complexes for cancer therapy

INVENTOR(S): Yang, Rongcun; Chen, Yongsheng; Yang, Xiaoying; Zhang, Zhuohan; Zhang, Yuan; Wang, Shujing; Ma, Yanfeng

PATENT ASSIGNEE(S): Nankai University, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 27pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1840706	A	20061004	CN 2006-10013051	20060116
PRIORITY APPLN. INFO.:			CN 2006-10013051	20060116

AB The invention provides novel small interfering RNA and single walled carbon nanotubes complexes for cancer therapy. The complexes are manufactured by: (1) connecting Boc-protected diamine to single walled carbon nanotubes (SWNTs) through chemical bonding so that the SWNTs contain pos. charges, and (2) connecting the SWNTs with small interfering RNA (siRNA) containing neg. charges through

electrostatic interaction to obtain the final product. The complex can carry siRNA into cells, and can improve the stability and function of siRNA in cells. In addition, the complex can also carry siRNA into tumor cells to inhibit the growth and proliferation of tumor cells, thus having potential antitumor applications.

L20 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2006:256806 CAPLUS
DOCUMENT NUMBER: 145:505046
TITLE: Functionalization of carbon nanohorns with azomethine ylides: towards solubility enhancement and electron-transfer processes
AUTHOR(S): Tagmatarchis, Nikos; Maigne, Alan; Yudasaka, Masako; Iijima, Sumio
CORPORATE SOURCE: Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, 116 35, Greece
SOURCE: Small (2006), 2(4), 490-494
CODEN: SMALBC; ISSN: 1613-6810
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The covalent functionalization of carbon nanohorns (CNH) via 1,3-dipolar cycloaddn. of azomethine ylides is described. The introduction of a repetitive centrifugation-filtration-solubilization cyclic treatment on the 1,3-dipolar cycloaddn. reaction of azomethine ylides with CNH is crucial for obtaining functionalized nanohorns of the highest purity, which are soluble in organic solvents and even in water. The nature of the α -amino acid used for the generation of azomethine ylides governs the solubility of modified nanohorns. The water solubility of cationic ammonium functionalized nanohorns in conjunction with the ability to drill holes on the external surface of nanohorns will open the door for the construction of novel nanohorn-based hybrid materials carrying diverse nanoparticles and/or metal clusters suitable for biotechnol. purposes.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2006:123079 CAPLUS
DOCUMENT NUMBER: 144:198898
TITLE: Method for binding hydrophilic substances to fine carbon fibers
INVENTOR(S): Kurita, Tomotaka; Kohama, Hiromasa
PATENT ASSIGNEE(S): Terumo Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006036638	A	20060209	JP 2004-213842	20040722
PRIORITY APPLN. INFO.:			JP 2004-213842	20040722

AB The invention relates to a process for binding a hydrophilic substance, e.g. a drug or a imaging agent, to fine carbon fiber, e.g. carbon nanofiber, carbon nanotube, and carbon nanohorn, etc. as drug carrier, wherein the method includes protecting hydrophilic group of the substance, dissolving the hydrophobilized substance in subcrit. or supercrit. fluid and binding them to fine carbon fiber, and deprotecting the substance. For example, doxorubicin hydrochloride was reacted with

di-tert-Bu dicarbonate to form N-Boc doxorubicin. The N-Boc doxorubicin was dissolved in supercrit. carbon dioxide fluid with multilayered carbon fiber. Then, the carbon fiber was mixed with HCl/acetic acid solution, and dried to give doxorubicin hydrochloride-bound carbon fiber.

L20 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:371169 CAPLUS
 DOCUMENT NUMBER: 142:430029
 TITLE: Amphiphilic [5:1]- and [3:3]-hexakis-adducts of fullerenes based on malonate groups, and their preparation and use in the formation of micelles and the treatment of oxidative stress diseases
 INVENTOR(S): Hirsch, Andreas
 PATENT ASSIGNEE(S): C Sixty Inc., USA
 SOURCE: PCT Int. Appl., 79 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005037711	A1	20050428	WO 2004-US34003	20041014
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 20050143327	A1	20050630	US 2004-963990	20041013
CA 2540195	A1	20050428	CA 2004-2540195	20041014
PRIORITY APPLN. INFO.:			US 2003-511763P	P 20031015
			WO 2004-US34003	W 20041014

OTHER SOURCE(S): CASREACT 142:430029

AB Malonate-substituted fullerenes are disclosed, comprising a fullerene core (C_n , wherein n is an even integer greater than or equal to 60), plus 3 or 5 dihydrocarbylmalonate groups [i.e., $C(COOR_1)(COOR_2)$ where R_1 and R_2 are hydrocarbyl] bonded to the fullerene core, and 1 or 3 polar extended malonate groups [i.e., $C(COOR_3)(COOR_4)$, where R_3 and R_4 contain terminal polar moieties], also bonded to the fullerene core. Terminal polar moieties include biotin, NH_2 , CO_2H , $CONH_2$, and their protonated forms. The substituted fullerenes can form micelles, and (no data) can be used to ameliorate oxidative stress diseases. Approx. 10 invention compds. and approx. 20 fullerene intermediates were prepared in examples. For instance, DMA-templated tris-cyclopropanation of the e,e,e-tris-adduct of cyclo-[3]-octyl malonate with C_60 , using the malonate diester $CH_2[COO(CH_2)14CONH(CH_2)3(OCH_2CH_2)20(CH_2)3NH-Boc]_2$ (preparation given), CBr_4 , and DBU in PhMe, gave the expected hexakis-adduct in 55% yield. Deprotection of the latter with TFA in CH_2Cl_2 (almost quant.) gave a hexaamino amphiphile [a fullerene hexakis(malonate ester) with 3 malonate groups cyclized by 3 $(CH_2)_8$ linkages and the other 3 malonates esterified with 6 $(CH_2)14CONH(CH_2)3O(CH_2CH_2O)_2(CH_2)3NH_2$ groups]. The pH-dependent water solubility of I was demonstrated by UV/Vis spectroscopy. I showed very low water solubility at neutral or weakly acidic pH, increased solubility at pH 5, and complete protonation and solubility at pH 3. I formed thin

aggregates in basic solution at pH 9-10, with the self-assemblies showing diams. of about 70 Å and great length, similar to carbon nanotubes. At neutral and acidic pH, no aggregates of I were observed. Another prepared hexa-L-alanine amphifullerene was very soluble in THF,

DMSO, and water at pH 7.2, and completely insol. in organic solvents such as CH₂C₁₂ and CHCl₃.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:160876 CAPLUS

DOCUMENT NUMBER: 142:240885

TITLE: Noncovalent functionalization of carbon nanotubes with poly(arylenealkylene) derivative compositions

INVENTOR(S): Stoddart, J. Fraser; Star, Alexander

PATENT ASSIGNEE(S): The Regents of the University of California, USA

SOURCE: U.S. Pat. Appl. Publ., 22 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050043503	A1	20050224	US 2004-919659	20040816
US 7220818	B2	20070522		
US 20070117964	A1	20070524	US 2007-653364	20070116
PRIORITY APPLN. INFO.:			US 2003-496946P	P 20030820
			US 2004-919659	A3 20040816

AB Nanotubes are treated with poly{(5-alkoxy-m-phenylenevinylene)-co-[(2,5-dioctyloxy-p-phenylene)vinylene]} (PAmPV) polymers and derivs. to provide noncovalent functionalization of the nanotubes which increases solubility and enhances other properties.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:856907 CAPLUS

DOCUMENT NUMBER: 141:356031

TITLE: Functionalized nanotubes

INVENTOR(S): Fischer, Alan; Hoch, Robert; Moy, David; Lu, Ming; Martin, Mark; Niu, Chun Ming; Ogata, Naoya; Tennent, Howard; Dong, Liwen; Sun, Ji; Helms, Larry; Jameison, Fabian; Liang, Pam; Simpson, David

PATENT ASSIGNEE(S): Hyperion Catalysis International, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 50 pp., Cont.-in-part of U.S. Ser. No. -594,673.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040202603	A1	20041014	US 2004-837125	20040430
US 6203814	B1	20010320	US 1994-352400	19941208
US 20060193868	A1	20060831	US 2006-412350	20060426
PRIORITY APPLN. INFO.:			US 1994-352400	A3 19941208

US 1996-611368	B1 19960306
US 1996-37238P	P 19960925
US 1997-812856	B1 19970306
US 2000-594673	A2 20000616

AB The invention describes graphitic nanotubes, which includes tubular fullerenes (commonly called "buckytubes") and fibrils, which are functionalized by chemical substitution or by adsorption of functional moieties. More specifically the invention relates to graphitic nanotubes which are uniformly or non-uniformly substituted with chemical moieties or upon which certain cyclic compds. are adsorbed and to complex structures comprised of such functionalized nanotubes linked to one another. The invention also relates to methods for introducing functional groups onto the surface of such nanotubes. The invention further relates to uses for functionalized nanotubes.

L20 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:5613 CAPLUS
DOCUMENT NUMBER: 138:205424
TITLE: Noncovalent Side-Wall Functionalization of Single-Walled Carbon Nanotubes
AUTHOR(S): Star, Alexander; Liu, Yi; Grant, Kevin; Ridvan, Ludek; Stoddart, J. Fraser; Steuerman, David W.; Diehl, Michael R.; Boukai, Akram; Heath, James R.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095-1569, USA
SOURCE: Macromolecules (2003), 36(3), 553-560
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A family of poly[(m-phenylenevinylene)-co-(p-phenylenevinylene)], functionalized in the synthetically accessible C-5 position of the meta-disubstituted phenylene rings have been designed and synthesized: they are essentially poly{(5-alkoxy-m-phenylenevinylene)-co-[(2,5-dioctyloxy-p-phenylene)vinylene]} (PAmPV) derivs. A range of these PAmPV polymers have been prepared both (1) by the polymerization of O-substituted 5-hydroxyisophthaldehydes and (2) by chemical modifications carried out on polymers bearing reactive groups at the C-5 positions. PAmPV polymers solubilize SWNT bundles in organic solvents by wrapping themselves around the nanotube bundles. PAmPV derivs. which bear tethers or rings form pseudorotaxanes with rings and threads, resp. The formation of the polypseudorotaxanes has been investigated in solution by NMR and UV/vis spectroscopies, as well as on silicon oxide wafers in the presence of SWNTs by AFM and surface potential microscopy. Wrapping of these functionalized PAmPV polymers around SWNTs results in the grafting of pseudorotaxanes along the walls of the nanotubes in a periodic fashion. The results hold out the prospect of being able to construct arrays of mol. switches and actuators.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1997:617963 CAPLUS
DOCUMENT NUMBER: 127:283826
ORIGINAL REFERENCE NO.: 127:55330h, 55331a
TITLE: Functionalized nanotubes
INVENTOR(S): Fischer, Alan; Hoch, Robert; Moy, David; Lu, Ming; Martin, Mark; Niu, Chun Ming; Ogata, Naoya; Tennent, Howard; Dong, Liwen; Sun, Ji; Helms, Larry; Jameison, Fabian; Liang, Pam; Simpson, David
PATENT ASSIGNEE(S): Hyperion Catalysis International, Inc., USA
SOURCE: PCT Int. Appl., 133 pp.

CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 5
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9732571	A1	19970912	WO 1997-US3553	19970305
W: AM, AT, AU, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, YU				
RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2247820	A1	19970912	CA 1997-2247820	19970305
AU 9721979	A	19970922	AU 1997-21979	19970305
AU 724277	B2	20000914		
EP 910340	A1	19990428	EP 1997-914892	19970305
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
CN 1217653	A	19990526	CN 1997-194402	19970305
BR 9707845	A	19990727	BR 1997-7845	19970305
JP 2002503204	T	20020129	JP 1997-531955	19970305
IL 125987	A	20030212	IL 1997-125987	19970305
RU 2200562	C2	20030320	RU 1998-116596	19970305
PRIORITY APPLN. INFO.:			US 1996-37238	P 19960306
			US 1996-37238P	P 19960306
			WO 1997-US3553	W 19970305

AB Graphitic nanotubes, which include tubular fullerenes (commonly called buckytubes) and fibrils, which are functionalized by chemical substitution or by adsorption of functional moieties are claimed. More specifically the invention relates to graphitic nanotubes which are uniformly or nonuniformly substituted with chemical moieties or upon which certain cyclic compds. are adsorbed and to complex structures comprised of such functionalized nanotubes linked to one another. The invention also relates to methods for introducing functional groups onto the surface of such nanotubes. The invention further relates to uses for functionalized nanotubes, which include enzyme immobilization for sample separation and immobilizing a biocatalyst capable of catalyzing a reaction on the functionalized nanotubes.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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